2007-05911/

Science and Engineering Research Canada

Contact

Investing in people, discovery and innovation

June 2004, Vol. 29, No. 3
ISSN 1188-066X

Good news, but ...

Editorial by NSERC President Tom Brzustowski

There was good news for science and engineering research in Budget 2004 in late March. The NSERC base budget would increase by $39 million per year. In addition, the amount available to help the universities meet the indirect costs of research would increase by $20 million per year. Given the cautions about a lack of money that were being sounded publicly right up to budget day, I believe that university research was treated very well. The momentum for improving research support in Canada that the federal government developed in the budgets of 1997 and subsequent years was being maintained. More than that, I believe that by providing these increases, the government acknowledged that university research is of value to Canada, and that the granting agencies are responsible custodians of public funds.

The Budget Plan 2004 described the purpose of the new funds in these words: "This will support additional opportunities for new and talented researchers, and help promote the translation of knowledge into commercial and social benefits for Canadians." I read the first part of that sentence as the government's positive response to the extraordinary growth of first-time applicants for NSERC Discovery Grants that I discussed in my last editorial. And rightly so. This growth, and the high quality of the new applicants, are great news for Canada. The government is clearly succeeding in promoting more and better research in Canada, and wants to maintain that record. (In the event, after transferring some applications to the Canadian Institutes of Health Research and eliminating a few ineligible ones, NSERC was left with 981 first-time applicants in the 2004 competition, of whom 676 or 69 per cent received some funding. At the same time, 259 previously funded researchers retired from the NSERC system. The net effect was that almost 420 new principal investigators with grants were added to Canada's university science and engineering research community.)

The second part of the sentence quoted from the budget plan clearly refers to the commercialization of the results of university research, a subject that the government has consistently identified as a priority. This is an area in which NSERC has been helping universities for the better part of two decades, and two of our small but effective programs in this area – Intellectual Property Management and Idea to

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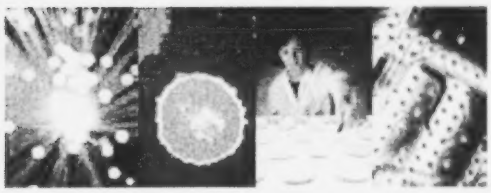

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Natural Sciences and Engineering Research Council of Canada
Conseil de recherches en sciences naturelles et en génie du Canada

Canada

NSERC, now also known as Science and Engineering Research Canada, is a key federal agency investing in people, discovery, and innovation. It supports both basic university research through research grants, and project research through partnerships among postsecondary institutions, government and the private sector, as well as the advanced training of highly qualified people.

Contact is published by the NSERC Newsbureau and can also be found on the Internet at www.nserc.gc.ca/publicat.htm.

Editor-in-Chief
Joyce French
E-mail:
joyce.french@nserc.ca

Please send address changes by e-mail to distribution@nserc.ca.

PUBLICATIONS MAIL AGREEMENT NO. 40062835

RETURN UNDELIVERABLE CANADIAN ADDRESSES TO

NSERC
350 ALBERT ST.
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Innovation – were explicitly recognized in The Budget Plan 2004 in an area of spending that the government expected to see tripled.

The increase of $39 million was less than we had hoped for, but enough to allow us to deal with some major problems. Most of the new money will go into Discovery Grants and Research Tools and Instruments. Significant pressures remain in many other programs, of course, and small improvements will be made where feasible. The pilot projects in the initiatives under the "New Vision" are being launched as planned, but funded very modestly indeed. And we have been told by the universities to expect a large number of first-time applicants for Discovery Grants again next year, which means that the relief provided by Budget 2004 will be temporary.

So far so good, but the $39 million increase in NSERC's base budget is still not a done deal. The Budget Bill was debated and passed in the House of Commons, it passed through Senate, and it was given Royal Assent in May. These Parliamentary steps are necessary for NSERC to be able to spend those new funds, but they are not sufficient. Contrary to appearances, the announcement of an increase in the Budget Speech does not authorize NSERC to spend the amount of new money specified. It only allows us to make a submission to Treasury Board for authority to spend it. In the past, making that case has been relatively straightforward. Needless to say, Treasury Board approval cannot be taken for granted, but NSERC's experience has generally been that our submissions were being approved without unreasonable delay. The final step in the process by which Parliament authorizes the spending of public funds is the vote on the government's Estimates, the list of all spending approved by Treasury Board. The Estimates are referred to committees which study them and report back to the House of Commons for the vote. The entire process is usually finished in the spring, before Parliament rises for the summer.

But this year is different. The election call which came very soon after the Budget Bill was passed did not leave enough time for the process to be completed before Parliament was dissolved. Whatever the outcome of the election, it takes time to form a new Cabinet, always with the possibility of organizational changes at the centre of government, and the various approval processes follow after that. All of that to say that at the time of writing we don't know when NSERC will receive authority to spend the new $39 million.

So while there certainly was good news for the Canadian science and engineering university research community in the last federal budget, it may be some time yet before that good news can be translated into action.

New Researchers Win Prizes

The winner of the 2004 NSERC Howard Alper Postdoctoral Prize (Dr. Aneil Agrawal) and the four winners of the 2004 NSERC Doctoral Prizes (Drs. Alexandre Blais, Marie Evangelista, Karim S. Karim, and Arindom Sen) were recently announced by the Honourable Lucienne Robillard, Minister of Industry and Minister responsible for the Economic Development Agency of Canada for the Regions of Quebec, and NSERC President Tom Brzustowski.

The prizes will be presented in Ottawa at the end of the year along with the NSERC E.W.R. Steacie Memorial Fellowships and the Gerhard Herzberg Canada Gold Medal for Science and Engineering.

For information on the winners and the prizes, visit www.nserc.gc.ca/about/award_e.htm.

NSERC Reps Help Celebrate NSERC's 25th Anniversary

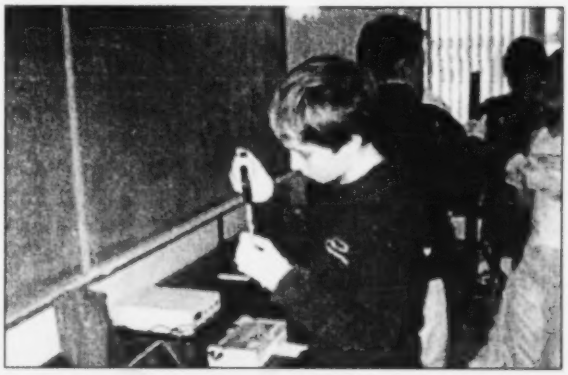
Some NSERC Reps held workshops. Others held Open Houses. Most held receptions to recognize the long-standing NSERC grantees at their universities.

However they chose to do it, the purpose of every event was the same – to celebrate NSERC's first quarter century since its inception on May 1, 1978.

In all, 40 universities across Canada held celebrations.

NSERC President Dr. Tom Brzustowski, who attended many of them, was appreciative of the community's response.

"I'm delighted that so many universities elected to recognize this important milestone for NSERC. That they regard it as an important milestone for themselves is profoundly gratifying," Dr. Brzustowski said.



Future scientist absorbed in studying the mysteries of DNA at a workshop held in conjunction with NSERC's 25th anniversary.

Budding Scientists Win Awards and a Trip to Beijing

Three award winners from this year's Canada-Wide Science Fair (CWSF) will represent Canada in August at the APEC Youth Science Festival in Beijing, China. Claire Pritchard of Manitoba, Natalie Raso of Ontario, and Kimberly Richards of Saskatchewan were selected from nearly 600 competitors drawn from 96 regional science fairs held across the country. Dr. Robert Roy, Outreach Manager at NSERC, which partnered with the National Research Council to sponsor the award winners' travel, was on hand at the CWSF in St. John's, Newfoundland, to present the trio with certificates and NSERC T-shirts.

Shown at the CWSF in St. John's are: (left to right) Robert Roy, NSERC; team members Claire Pritchard, Natalie Raso, and Kimberly Richards; and YSF Canada President Lorne Heslop.

"I was pleasantly surprised by the calibre of the CWSF projects, and especially by the quality of the research of the award winners," said Dr. Roy. "I saw many projects that used proper research methods to answer questions that we, as adults, don't give much thought to. I am pleased that NSERC's contribution will help showcase the talent of these young Canadian scientists to the world."

The CWSF is the Youth Science Foundation's (YSF) national event and is held yearly in cities across Canada. It gathers together many of Canada's most promising young scientists and future engineers. Participants range from Grade 7 pupils to students at the Grade 12/CÉGEP II level. This year's CWSF was held from May 17 to 21. The 2005 event will be held in Vancouver, British Columbia.

The YSF is looking for ways to assist budding young scientists, whether simply to answer questions via e-mail, host a field trip, help organize a science fair, or help connect youth to potential mentors. The YSF is also interested in finding out how science fairs, including the CWSF, played a role in their early development. For more information, contact support@ysf.ca or visit the YSF Web site at www.ysf.ca.

Competition News

Discovery Grants Programs

In February, NSERC's Grant Selection Committees reviewed 3,034 applications for Discovery (including Subatomic Physics) Grants and recommended 75 per cent for funding. They also recommended funding 35 per cent of the 1325 applications for Research Tools and Instruments Category 1 Grants.

In addition, 60 per cent of the 51 Major Facilities Access (incl. subatomic phys.) applications were recommended for support.

TIPS...

For tips on How to Prepare a Winning Proposal, visit our Web site at www.nserc.gc.ca/programs/winprop_e.htm.

Here is a summary of awarded grants from the 2004 competition and instalments of grants awarded in previous competitions.

For a detailed list of awards and statistics, visit www.nserc.gc.ca/programs/result/2004/rg/index_e.htm.

2004 Grants Awarded, Including Ongoing Instalments

Grant Selection Committee	Discovery Grants[1]		Research Tools & Instruments[2]	
	No.	$ (000's)	No.	$ (000's)
Animal Biology[3]	53	1,931		
Animal Physiology[3]	48	2,191		
Integrative Animal Biology	307	11,657	34	1,248
Cell Biology	328	12,837	17	937
Molecular & Developmental Genetics	253	10,276	22	621
Plant Biology & Food Science	318	12,663	24	1,187
Evolution & Ecology	532	16,602	40	1,094
Psychology: Brain, Behaviour & Cognitive Science	429	12,406	28	756
LIFE SCIENCES	**2,268**	**80,563**	**165**	**5,843**
Analytical & Physical Chemistry	333	16,152	24	1,953
Inorganic & Organic Chemistry	312	17,209	31	2,475
General Physics	155	5,445	11	1,363
Condensed Matter Physics	233	9,168	9	635
Space & Astronomy	173	7,693	5	164
Solid Earth Sciences	339	11,503	13	582
Environmental Earth Sciences	341	9,781	28	1,023
PHYSICAL SCIENCES	**1,886**	**76,951**	**121**	**8,195**
Statistical Sciences	287	5,125	4	192
Pure and Applied Mathematics - A	334	5,731	0	0
Pure and Applied Mathematics - B	267	7,687	1	21
MATHEMATICAL SCIENCES	**888**	**18,543**	**5**	**213**
Chem. & Metallurgical Engineering	556	18,054	39	3,263
Civil Engineering	523	13,223	30	1,666
Communications, Computers & Components Engineering	457	12,626	15	1,248
Electromagnetics & Electrical Systems Engineering	283	9,997	15	531
Mechanical Engineering	573	14,802	37	2,112
Industrial Engineering	251	5,989	5	232
ENGINEERING	**2,643**	**74,691**	**141**	**9,052**
Computing & Information Sciences[3]	3	61		
Computing and Information Sciences - A	371	9,375	14	670
Computing and Information Sciences - B	479	13,152	12	504
COMPUTING & INFORMATION SCIENCES	**853**	**22,588**	**26**	**1,174**
Interdisciplinary	106	3,137	7	342
SUB-TOTAL	**8,644**	**276,473**	**465**	**24,819**
Accelerator Grant for Exceptional New Opportunities (AGENO)	15	1,531		
Leadership Support Initiative (LSI)	7	271		
Subatomic Physics	143	17,271		
TOTAL	**8,809**	**295,546**	**465**	**24,819**

1 Includes Individual, Group, Project, Institute, Steacie Supplement, Leadership Support and Accelerator Grants.
2 Includes Research Tools and Instruments (RTI) Category 1 (moratorium in effect for RTI 2 & 3). Certain committees review RTI jointly, which may cause significant variations in the funding rate.
3 Historical committees.

Grants Respond to Special Research Opportunities

Special Research Opportunity (SRO) grants enable researchers to pursue new and emerging research opportunities at the time they become apparent, or investigate and develop potential new collaborations necessary to respond to these national and international opportunities. Since the launch of the program last summer, we have received 105 letters of intent (LOI); of those, 38 were invited to submit an application. To date, 11 applications have been reviewed and 8 grants awarded.

One recent recipient of an SRO grant is Dr. Melanie Jones, an associate professor in the Department of Biology at Okanagan University College. Record low rainfall and an out-of-control forest fire form the genesis of her new research. Dr. Jones is studying Douglas-fir seedlings in southern interior B.C. as they regenerate after last year's fire. She is looking specifically at the physiology of ectomycorrhizal fungi, symbiotic fungi that work with the trees to give them greater access to soil and nutrients than they can achieve by root span alone. Dr. Jones will determine whether the fungi that colonize the roots after a fire are different than those in mature forests and clearcuts. The results of the study will be used to aid in the regeneration of these trees after logging.

For more information on the SRO program, visit www.nserc.gc.ca/professors_e.asp?nav=profnav&lbi=a4.

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Scholarships and Fellowships Competition Results

Following their review of almost 4,000 applications in February, NSERC's six scholarships and fellowships selection committees offered almost 1,900 regular NSERC awards as well as 478 Canada Graduate Scholarships (CGS). This is the second year these prestigious scholarships have been awarded to the top-ranked applicants in the NSERC competition. Depending on acceptance rates, further CGS awards may be possible. Final lists of 2004 CGS holders will be posted on NSERC's Web site in early 2005.

TIPS...

For tips on how to prepare a winning scholarship or fellowship proposal, visit our Web site at www.nserc.gc.ca/programs/sf/pgs_pdf_tips_e.htm.

2004 Applications and Awards

Postgraduate Scholarships (PGS) and Canada Graduate Scholarships (CGS)

Selection Committee	Number of Applications	Number of PGS Awards	Number of CGS Awards	Success Rate (%)
Engineering	609	329	98	70.1
Computing and Mathematical Sciences	629	340	103	70.4
Physics and Chemistry	402	219	63	70.1
Earth Sciences and Ecology	431	229	69	69.1
Cellular and Molecular Biology	441	238	71	70.0
Life Sciences and Psychology	454	242	74	69.6
TOTAL	**2,966**	**1,597**	**478**	**70.0**

Postdoctoral Fellowships (PDF)

Selection Committee	Number of Applications	Number of Awards	Success Rate (%)
Engineering	186	53	28.5
Computing and Mathematical Sciences	150	43	28.7
Physics and Chemistry	177	50	28.2
Earth Sciences and Ecology	150	44	29.3
Cellular and Molecular Biology	145	42	29.0
Life Sciences and Psychology	151	43	28.5
TOTAL	**959**	**275**	**28.7**

Julie Payette-NSERC Research Scholarships

The prestigious Julie Payette-NSERC Research Scholarships, valued at $25,000 annually, were recently awarded to 24 graduate students. These scholarships are awarded to the most outstanding applicants in the Postgraduate Scholarships Master's competition. Four candidates were selected within each of the six discipline-based Scholarships and Fellowships selection committees.

The 2004 winners are listed at www.nserc.gc.ca/programs/julie_e.htm.

University Faculty Awards

As a result of the 2004 competition, 24 women and 2 Aboriginal persons will take up faculty positions in universities across Canada. NSERC contributes $40,000 towards the salary of an award holder for up to five years and provides each researcher with a Discovery Grant. A list of the current winners can be found at www.nserc.gc.ca/programs/result/2004/ufa/ufa_results_e.htm.

Collaborative Health Research Projects – Program News

The first grants for Collaborative Health Research Projects that are jointly funded by both the Canadian Institutes of Health Research and NSERC were awarded in April. Of the 111 applications that were received (almost double last year's), 18 grants were awarded, including one co-funded by the Institute of Aging, for an overall 16 per cent success rate. Successful applications demonstrated a potential impact on the health of Canadians in the near to medium term, and new collaborations between health researchers and natural scientists or engineers.

Funded projects covered a variety of research topics, ranging from a team of mathematicians, immunologists and obstetricians led by Dr. Anne Croy of the University of Guelph who will study the role of mammalian natural killer cells in early pregnancy, to a team of mechanical engineers, computer scientists and surgeons led by Dr. David Pichora of Queen's University who will develop better tools to help surgeons visualize complex bone fractures near joints.

Potential applicants to the 2005 competition should complete a Notification of Intent to Apply for a Collaborative Health Research Project Grant (Form 182) by August 1. For more CHRP program news, visit NSERC's Web site, www.nserc.gc.ca, and look for Grants Programs in the Program Guide for Professors.

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Competition News – continued from page 5

NSERC Reaches Out to Young Canadians

PromoScience, now in its fourth year, supports the creation of hands-on learning experiences that engage young people in the excitement of science and engineering. In November, an eight-member panel reviewed 103 applications that had been submitted to the last competition. As a result, NSERC will contribute a total of $3,970,000 over three years to 58 youth programs. The successful awards include:

Livewire: Living with rattlesnakes. The Osoyoos Indian Band has developed a method through which elementary and high school students can safely study rattlesnakes. With the help of radio transmitters, students will have the opportunity to track snakes at the desert heritage centre. They will also learn how blood samples and DNA evidence help to show the size and diversity of local populations.

Educational kits for the l'École en Course Project. L'École en Course enables elementary and high school students to build a stock car with the help of a university student. Once built, the vehicles will be put through their paces in a friendly inter-school race. Université Laval's Department of Mechanical Engineering will develop an educational package to help students understand principles of physics that are key to the project.

According to panel Chair George Wurtak, a third-year member of the selection panel, "The quality of applications received has continued to improve over the past three years, as has the breadth of partnerships and community support for those programs."

A list of the successful applicants can be found on the PromoScience Web site at www.nserc.gc.ca/promoscience.

Northern Research

Supplements Help to Offset Costs of Northern Research

In expanding its efforts to support northern research, this spring NSERC awarded the first of its new supplements for northern research. These awards were made to 54 holders of NSERC Discovery Grants. They are designed to offset certain logistical costs of research in the Canadian North. The supplements have a maximum value of $10,000, and are awarded annually for the duration of the Discovery Grant.

This year, 125 applications for supplements were received. Given the unexpectedly high number of applications and the outstanding quality of these proposals, the review committee successfully urged NSERC to increase this program's budget by 25 per cent and to ramp up the yearly commitment to $500,000. This investment will go a long way towards helping researchers deal with the high cost of conducting research in the North.

Every year, academics who are conducting research in Canada's North and applying for a Discovery Grant will be able to apply for a Northern Research Supplement. To learn more, consult the *Program Guide for Professors* on our Web site, www.nserc.gc.ca.

Conference Brings Together Stakeholders

A "Dialogue on Northern Research" was held in downtown Whitehorse March 25-27. It attracted over one hundred participants from universities, government departments, northern communities and other agencies involved in northern research, and resulted in many suggestions for improving the approach to research in the north across disciplines and organizations.

Recommendations included establishing a national strategy for northern research; building capacity for northern research – especially in the North; and establishing a peer-reviewed, tri-agency strategic funding envelope for new emerging teams in multidisciplinary northern research.

The Dialogue – organized by the three federal granting agencies, and sponsored by Indian Affairs and Northern Development Canada, Fisheries and Oceans Canada, and Health Canada – was aimed at facilitating the networking opportunities for stakeholders interested in northern research; providing an opportunity for stakeholders to identify strengths, gaps and barriers in northern research and ideas for addressing those gaps and barriers; and identifying actions to improve northern research and collaboration between natural sciences, social sciences and health sciences researchers, research users and research funders.

NSERC and the other agencies are in the process of finalizing a report arising from the proceedings, which will be sent to all participants, and will be exploring joint mechanisms to help realize some of the visions outlined at the Dialogue.

New Deadline Date for Research Tools and Instruments Grant Applications

Following consultation with a number of institutions, NSERC has established a new deadline date for the receipt of Research Tools and Instruments Grant applications. The applications and associated material must be received at NSERC by October 25.

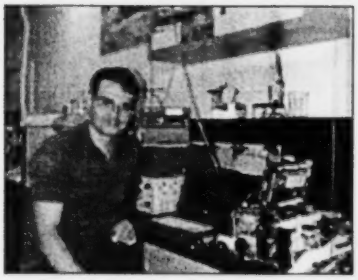
If you have any questions, contact Ginette Drouin by telephone at (613) 996-8020 or by e-mail at coord@nserc.ca.

Necessity Being the Mother of Invention

In 1990, Dr. Janusz Pawliszyn, who was struggling with a collection of chemical samples, had an insight that has led to accolades from a very discerning group: the analytical chemistry community. Touted as one of the significant analytical inventions of the last decade by the *Analytical Chemistry* journal, the Solid Phase Microextraction (SPME) process – essentially a mini-syringe used to extract and analyze on-site samples – has revolutionized sample collection. From a desire to find a way to solve one of his problems, Dr. Pawliszyn has invented a technology that has wide-reaching implications for the health and environmental fields. The ability to take and analyze a sample on site allows for a greater level of accuracy and more efficient use of time. It also eliminates the need for the often harmful and invasive sample collection procedures currently in use.

In his role as the NSERC Industrial Research Chair in New Analytical Methods and Technologies (since 1995), Dr. Pawliszyn's research deals with the design of highly automated, integrated and miniaturized instrumentation. Dr. Pawliszyn's main goal is to perform the analysis, or at least sample preparation process on site, where the investigated system is located, rather than transporting the samples to the laboratory. The proposed devices are small and very simple in principle and can be effectively used for in-situ and in-vivo investigations.

The benefits of his work reach farther than the analytical research community. The list of corporate partners for the Chair, which includes Varian, Supelco, Restek, Convergent Biosciences, Eli Lilly, Leap Technologies, and MDS Sciex, demonstrates the breadth of possible applications. The sponsors' interests vary from automated analysis methods and sample handling for mass spectral analysis, to technologies for homeland security, fragrance analysis, intravenous applications, and capillary electrophoresis analysis and automation.



Prof. Janusz Pawliszyn

"The benefits derived thus far from this collaboration have been significant and have met or exceeded Varian's expectations," says Kathy Moffatt from Varian, an instrumentation company and sponsor of the Chair. "Dr. Pawliszyn's global reputation, his referral capability and the impact of his training program have resulted in substantial commercial benefit for Varian, both locally and abroad."

Research Gaps: Perception of Pain in Fish

The Canadian Council on Animal Care (CCAC) *guidelines: on the care and use of fish in research, teaching and testing* are currently being developed by a subcommittee of experts. In the process of developing these guidelines, the subcommittee has become aware of the need for further scientific exploration in the area of pain perception in fish. As with other CCAC guidelines, the subcommittee has chosen to take a precautionary approach within these guidelines, stating that fish may have the potential to experience pain and distress, and therefore should be treated with the same considerations afforded to other vertebrate species. However, the paucity of scientific evidence on pain perception in fish has led to difficulties in developing specific recommendations concerning the use of anaesthetics and analgesics. In particular, making recommendations in this area requires solid scientific data on the effects of analgesia in mitigating pain and distress, for example, following surgical interventions such as insertion of telemetric devices.

This case also highlights the general need for research in the areas of animal well-being and the impact of animal well-being on scientific data. Where possible, investigators should incorporate an analysis of these areas into their work and find means to engage in studies which will further the availability of scientific evidence on which recommendations for the care and use of animals can be based.

The current debate on the ability of fish to perceive pain and how this impacts the development of guidelines for the care and use of fish is described by G. Griffin and C. Gauthier in an article published in the February 2004 Supplementary Issue to *Animal Welfare*. Additionally, a recent article in *The Scientist*, "Improving the Lives of Laboratory Animals," by J.S. MacNeil, provides a comprehensive review of the progress achieved and future challenges in the area of pain management and environmental enrichment for animals used in science in various countries, including Canada.

For further information about the CCAC Guidelines Development Program, contact Gilly Griffin, Guidelines Program Director, at ggriffin@ccac.ca.

New Initiatives Well Underway

It has been a little over a year since NSERC announced five New Initiatives, and there is lots of progress to report.

Danielle Ménard has been appointed to the new position of Director, Development of **Regional Offices**. As such, she will be responsible for all aspects of creating the five regional offices, and for integrating them within NSERC's structure and culture.

Danielle has a long and distinguished history at NSERC. Most recently, she was the Director, Integrated Management Practices. Danielle's knowledge of the organization and her many talents will serve her well in this challenging position.

The Moncton office is scheduled to open this summer with a Winnipeg office to follow in 2005.

In late May, NSERC received 41 Letters of Intent (LOIs) from across Canada for the **Centres for Research in Youth, Science Teaching and Learning (CRYSTAL) Pilot Program**. The proposed Centres involve education researchers working with science, math and engineering faculty, as well as a wide variety of partners, to help improve the quality of science and mathematics education (K-12) in Canada. Some proposed Centres address important general issues in science and math education, whereas others are more focused on particular themes, such as math, environmental sciences, and e-learning.

The LOIs will be peer reviewed and in early July a select number of applicants will be invited to prepare full proposals. The deadline for complete applications has been extended to Oct. 22.

The peer review of complete applications will take place during the fall and winter. The review will be interdisciplinary, and will include input from researchers in the science, math, engineering and education communities, as well as representatives from school systems, science outreach groups, ministries of education, etc. If you are interested in participating in the review of the full proposals for CRYSTAL, please contact crystal@nserc.ca.

The framework for assessing and ranking **Big Science Projects** was endorsed by NRC and NSERC Councils in March 2004. Public consultations are expected to begin in late fall.

Out of 39 eligible small universities, 34 submitted applications for the **Research Capacity Development in Small Universities Pilot Program**. These applications have now been sent to the committee, which will meet to review them July 6 and 7. Results are expected to be announced at the end of July.

By the May 28 deadline for the **College and Community Innovation Pilot Program**, NSERC had received applications from 29 colleges across Canada. The colleges included both large and small institutions, urban and rural, and both well established with a history of working with local industry and newer institutions just establishing their reputation.

Proposals were in a wide variety of areas including advanced manufacturing, new materials, intelligent systems, process and production optimization, agriculture. aquaculture and several environmental topics. The proposals will be reviewed by a selection committee in early August and the results announced at the end of August.

University - Industry Synergy

Awards Gala

NSERC is pleased to announce it will be hosting the 10th annual Synergy Awards Gala in Kitchener, Ontario, on Oct. 26, 2004.

The Synergy Awards for Innovation recognize outstanding university-industry R&D collaboration. Winning university professors will be awarded a $25,000 research grant and their corresponding industry partners will receive the prestigious Synergy sculpture. The Innovation Challenge Awards, launched earlier this year, will also be awarded at the Gala to graduate students who wrote winning essays on what potential product or service could be implemented through application of their research results.

For more information on the awards, visit NSERC's Web site at www.nserc.gc.ca/about/award_e.htm.

Hemispheric Collaboration in Materials Research

This summer, NSERC will launch a Request for Proposals for the 2nd joint competition (2004-2005) of the inter-American Collaboration in Materials Research (CIAM). Other participating countries include Argentina, Brazil, Chile, Colombia, Jamaica, Mexico, and the United States of America.

Projects to be supported through this initiative must have a clear relevance to basic materials phenomena, synthesis, characterization, or to materials-related applications in processing, design and manufacturing.

Participating researchers receive funding from their respective country. NSERC will support a limited number of projects that present a special opportunity for inter-American collaboration. For NSERC support, eligible materials researchers may propose bi-lateral projects with collaborators from one participating Latin American country. Proposals to NSERC that involve researchers from Canada and the U.S. must also include researchers from at least one other participating country. In addition, projects may involve collaborators from countries in another hemisphere (e.g., Spain) provided research expertise is clearly complementary to that of the proposed CIAM collaborative team.

Interested researchers are encouraged to begin to approach potential collaborators.

Support is available for projects of up to three years' duration for NSERC-eligible researchers based in Canada, in the fields of materials science and engineering. Applications will be due in the fall. Awards will be confirmed by late spring 2005.

For more information contact Denis Leclerc, NSERC's Manager, Policy & International Relations, by telephone at (613) 992-3445 or by e-mail at denis.leclerc@nserc.ca.

Four More Universities Add a SPARK

Acadia University, McMaster University, the University of Toronto and Wilfrid Laurier University were all successful in the recent Students Promoting Awareness of Research Knowledge (SPARK) competition. They join 10 other institutions currently receiving SPARK funding from NSERC and 14 others who have participated in the program.

Through SPARK, students are recruited, trained and paid to write stories based on the NSERC-supported research at their institution. SPARK students gain marketable skills, and participating institutions and NSERC benefit from increased public awareness of their role in the research enterprise.

While NSERC has now been running the national program for six years, SPARK itself is celebrating its 15th anniversary this year. NSERC is pleased to congratulate program founder Owen Roberts, Director of Research Communications at the University of Guelph, and his SPARK team for the tremendous success of their program. The Guelph program has won a number of awards over the years, including the Canadian Council for the Advancement of Education's 2003 Gold Award for "Best Program: Public Affairs, Marketing and Communications."

Following is an NSERC SPARK story by York University's SPARK student writer Jason Guriel, reprinted from YFile, *York's daily electronic newsletter.*

Space-Age Building Blocks

Prof. Diethard Bohme

Chemical reactions often involve two uncharged molecules. However, scientists have long known that mixing charged molecules, or ions, with uncharged molecules can yield some of the fastest reactions known to chemistry. These reactions and how they take place in the universe is leading York chemistry Professor Diethard Bohme on a quest that looks to the heart of the very existence of life.

"An understanding of these reactions," says Bohme, "may greatly contribute to an understanding of how life developed in our universe."

With the help of radio astronomers and mass spectrometry, Bohme, Canada Research Chair in Chemical Mass Spectrometry, is identifying and studying these extraordinarily fast reactions as they occur in the great interstellar clouds between the stars.

Building on the work of radio astronomers – who have identified more than 100 different kinds of interstellar molecules – Bohme and graduate student Voislav Blagojevic have elucidated the chemical reactions that produce simple amino acids in these interstellar clouds.

"And amino acids," said Bohme, "are the building blocks of life."

Just published in *The Monthly Notices of the Royal Astronomic Society*, Bohme and Blagojevic's groundbreaking findings are now being examined by NASA.

Space chemistry is only just one area of interest for Bohme. Funded by NSERC, NRC and the company MDS Sciex, Bohme is also studying the chemistry and biochemistry of metal ions. As a result of this work, Bohme has demonstrated the use of metal ions in analytical mass spectrometry as well as in the catalytic reduction of nitrous oxide by carbon monoxide. An ongoing project of his mimics the way metal ions attach to biological molecules, and then measures biochemical activity in the gas phase. Plus, in collaboration with NRC Halifax, Bohme's research group is also developing new mass-spectrometric approaches that will lead to better analytic methods for identifying water toxins.

Bohme's work is interdisciplinary, drawing on astronomy, physics, chemistry and biology.

World's Science Media Come to Montréal in October

NSERC is a major sponsor of an upcoming conference that will bring together hundreds of top science journalists from around the world. The 4th World Conference of Science Journalists will be held Oct. 4-8 in Montréal and will showcase advances in Canadian research to approximately 400 members of the international media. This is the first time the event is being held in Canada, and it will give the Canadian scientific community international attention. During the conference, the media will participate in tours to various science and medical research centres and will take part in workshops and discussions of hot topics and issues in science news coverage. Presentations such as "Mind Reading: What Do We Know About the Brain?" and "Polar Science Blossoms in Canada" will be given. In addition to NSERC's general sponsorship of the conference, the NSERC Newsbureau will host a Cyber Garden at the event, which will be used by journalists to prepare and send stories to their home media outlets. Information about the conference can be found at www.wcsj2004.com.

eBusiness Update

affairs e business

Meeting of the eBusiness Advisory Group

Earlier this year, university administrators, researchers, and committee members participated in an eBusiness Advisory Group meeting to make recommendations on current projects and help NSERC better prioritize future projects.

The eBusiness Team received valuable feedback and recommendations. Identified as priorities were:

- system stability and performance improvements;
- extranets with university administrators, peer reviewers and other groups, which include access to extensive data for each university;
- expansion and improvement to Helpdesk services for university administrators;
- eSubmission of applications for Scholarships and Fellowships Programs; and
- implementation of the Common CV (CCV).

Plans for a second session are being developed.

Extranets

The eBusiness Team has also been soliciting feedback on extranet requirements. Extranets are secured networks that will link NSERC and the research community, more specifically university administrators and selection committees, to conduct shared business objectives. Based on these consultations, eight different extranets will be developed throughout 2004, with more to follow.

Implementing the Common CV (CCV) at NSERC

The eBusiness Team plans to complete implementation of the CCV at NSERC over the next year. This will involve reviewing NSERC data requirements, aligning them with those of the CCV, integrating the CCV with the eSubmission of application system, and developing a data transfer protocol between the two systems.

CCV Overview

July 2002	The CCV is officially launched.
June 2004	An improved and enhanced version of the CCV is released, making it faster and easier to use.
2004 – 2005	Improvements will be made and the implementation at NSERC completed.

Financial Data Submission and Reconciliation (FDSR)

More than 70 per cent of NSERC's eligible institutions have now registered to use the FDSR On-Line System. With the 2004 financial reporting cycle fast approaching, the remaining institutions should consider taking advantage of this tool. The FDSR System – a tri-agency service – is an innovative financial tool helping to *lighten the administrative load* for both Business Officers and Researchers, by allowing individual grant expenditure data to be sent electronically to NSERC.

The FDSR Team has already started planning for Release 2 of the System, aimed at addressing such issues as grants involving co-applicants and off-cycle reporting of grant expenditures.

For additional information on the FDSR On-Line System, please visit the project page at www.nserc.gc.ca/e/proj_3_e.asp.

Tell Us What You Think

Your collaboration and feedback is critical to our being able to deliver successful eBusiness services.

You can count on us to be in touch with you to participate in a survey or to test a new service. However, please don't feel you have to wait for a specific request to send us your thoughts! You can reach us by telephone at (613) 943-7983, by fax at (613) 943-5096, or by e-mail at ebusiness@nserc.ca.

NSERC Regional Meetings and Scholarships Information Sessions

NSERC and the Social Sciences and Humanities Research Council (SSHRC) will hold joint meetings to help Scholarships Liaison Officers and university administrators stay current with changes to NSERC's and SSHRC's undergraduate, postgraduate and postdoctoral programs. Regional meetings will be held as follows:

Montreal	Sept. 9	Toronto	Sept. 17
Halifax	Sept. 24	Vancouver	Sept. 24

NSERC staff will also visit institutions holding orientation sessions for students planning to apply for NSERC scholarships and fellowships. If you are planning to hold such sessions on or around the dates of the regional meetings and would like NSERC staff to attend, please contact the Site Visit Coordinator at scholarshipsvisits@nserc.ca.

Prudent Use of Unspent Research Funds

NSERC reviews unspent grant account balances annually to ensure that the release of funds to researchers corresponds as closely as practicable to the actual cash flow requirements.

In January, NSERC contacted 378 grantees and gave them the option of justifying the need for their next instalment or requesting a deferral which would postpone payment of the instalment by one year. Approximately one third chose the deferral option; this freed up $3.95 million that will now be used for urgent expenditures.

"We were able to gather a large number of responses in a very short time frame. This would not have been possible without the help of the universities and researchers," said Paul Potvin, one of NSERC's Senior Financial Officers.

For information on deferring an instalment, send an e-mail to NSERC's Award Administration section: casdfin@nserc.ca.